



SAFETY DATA SHEET

GHS / OSHA HazCom 2012 Compliant

Viking Stack Peptides

Phakellistatin 13

CAS: 493012-52-5
Formula: C42H54N8O8

Document ID: 65181b00
Revision Date: 2026-09-11
Version: 1.0

Section 1 — Product and Company Identification

Product Name	Phakellistatin 13
Synonyms	Phakellistatin 13; DTXSID901045610; (6S,9S,15S,18S,21S,24S)-6-benzyl-21-((1R)-1-hydroxyethyl)-15-(1H-indol-3-ylmethyl)-18-(2-methylpropyl)-1,4,7,13,16,19,22-heptazatricyclo[22.3.0.0 ^{9,13}]heptacosane-2,5,8,14,17,20,23-heptone
CAS Number	493012-52-5
PubChem CID	11125657
Molecular Formula	C42H54N8O8
IUPAC Name	(6S,9S,15S,18S,21S,24S)-6-benzyl-21-[(1R)-1-hydroxyethyl]-15-(1H-indol-3-ylmethyl)-18-(2-methylpropyl)-1,4,7,13,16,19,22-heptazatricyclo[22.3.0.0 ^{9,13}]heptacosane-2,5,8,14,17,20,23-heptone
Identified Uses	Research laboratory chemical for in vitro scientific research and development use only.
Restriction on Use	Not for human or veterinary use. Not for food, drug, cosmetic, household, agricultural, clinical, therapeutic, or diagnostic applications.

Manufacturer / Supplier

Company	Viking Stack Peptides
Address	560, Fort Worth, TX 76137, United States
Phone	8178816217
Emergency Phone	8178816217

Section 2 — Hazard Identification

Classification of the substance

Not classified based on currently available data; however, data is limited and hazards cannot be fully characterized. The absence of classification should not be interpreted as a determination of the absence of hazard.

Classification has been conducted in accordance with 29 CFR 1910.1200 (OSHA HazCom 2012) and GHS Rev.8 using all available data and scientifically valid weight-of-evidence approaches (GHS Rev.8 Chapter 1.3.2.4), including read-across from chemical class and structural considerations where substance-specific study data is not available.

Signal Word: None

GHS Pictograms:

None required based on classification.

Hazard Statements

None. This substance is not classified for any GHS hazard class based on available data.

Precautionary Statements

- P261: Avoid breathing dust, fume, gas, mist, vapors, or spray.
- P264: Wash hands and exposed skin thoroughly after handling.
- P280: Wear protective gloves, protective clothing, and eye/face protection.
- P501: Dispose of contents and container in accordance with local, regional, national, and international regulations.

Precautionary statements are provided as best practice for handling substances with limited toxicological data, and are not a declaration of GHS classification.

Hazards Not Otherwise Classified (HNOC)

None known based on available data and weight-of-evidence assessment. The toxicological properties of this substance have not been fully characterized; handle as a potentially bioactive substance of unknown toxicity.

Section 3 — Composition / Information on Ingredients

Single-substance product. Chemical identity:

Ingredient	CAS Number	Mol. Formula	Mol. Weight	Concentration
Phakellistatin 13	493012-52-5	C42H54N8O8	798.9 g/mol	>98% (research grade)

Impurities

No hazardous impurities known to be present above the GHS classification thresholds specified in 29 CFR 1910.1200 Appendix A. Residual synthesis reagents, solvents, and counter-ions may be present at levels consistent with research-grade (>98% purity) material. Balance: non-hazardous impurities. Refer to the accompanying Certificate of Analysis (CoA) for the lot-specific impurity profile.

Section 4 — First Aid Measures

Eye Contact

Rinse cautiously with water for several minutes. If irritation persists, seek medical advice.

Skin Contact

Wash with soap and water. Remove contaminated clothing and wash before reuse. If irritation persists, seek medical advice.

Inhalation

Move affected person to fresh air. If symptoms develop, seek medical advice.

Ingestion

Rinse mouth thoroughly with water. If large amounts are swallowed or if symptoms develop, seek medical advice. Do not induce vomiting unless directed by medical personnel.

Note to Physician

Treat symptomatically. No specific antidote known.

Section 5 — Fire Fighting Measures

Flash Point: *Not determined*

Suitable Extinguishing Media

Use extinguishing media appropriate to the surrounding fire conditions. Carbon dioxide (CO₂), dry chemical powder, foam, or water spray.

Special Hazards

May produce toxic gases upon combustion. Carbon monoxide and other combustion products may be generated.

Protective Equipment for Firefighters

Wear self-contained breathing apparatus (SCBA) and full protective gear. Do not enter fire area without proper protective equipment.

Section 6 — Accidental Release Measures

Personal Precautions

Avoid dust formation. Avoid breathing vapors, mist, or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Use personal protective equipment as described in Section 8.

Environmental Precautions

Prevent further leakage or spillage if safe to do so. Do not allow the product to enter drains, sewers, or waterways.

Containment and Cleanup

Sweep up and shovel. Keep in suitable, closed containers for disposal. Avoid raising dust. Clean contaminated surface thoroughly. Dispose of waste in accordance with local regulations (see Section 13).

Section 7 — Handling and Storage

Handling Precautions

Handle Phakellistatin 13 only in a well-ventilated area, preferably within a certified chemical fume hood or ventilated weighing enclosure, in accordance with OSHA 29 CFR 1910.1200 and the laboratory standard 29 CFR 1910.1450. Because comprehensive toxicological data for this cyclic octapeptide are not established, follow the precautionary guidance of 29 CFR 1910.1450 Appendix A: treat the substance as a compound of unknown toxicity and minimize all routes of exposure. Wear appropriate personal protective equipment, including chemical-resistant nitrile gloves, a buttoned laboratory coat, and ANSI Z87.1-compliant safety eyewear; use a NIOSH-approved particulate respirator (e.g., N95 or higher) when weighing or otherwise handling the dry solid in a manner that could generate dust or aerosols outside of engineering controls. Avoid inhalation, ingestion, and contact with skin, eyes, and clothing. Do not eat, drink, smoke, or apply cosmetics in areas where the substance is handled. Use non-sparking tools where practical and avoid generating dust clouds. Weigh and transfer the solid on a static-dissipative surface and clean spills immediately using HEPA vacuuming or damp wiping rather than dry sweeping. Wash hands and exposed skin thoroughly with soap and water after handling and before leaving the work area. When preparing stock solutions, allow sealed containers to warm to room temperature inside a desiccator before opening to prevent condensation-induced hydrolysis of the peptide.

backbone. Decontaminate work surfaces and reusable equipment after each use, and dispose of contaminated PPE and residues as hazardous laboratory waste in accordance with applicable EPA (40 CFR 262) and local regulations.

Storage Conditions

Store the lyophilized/solid Phakellistatin 13 in its original tightly closed container, protected from light, moisture, and heat. Recommended storage for lyophilized cyclic peptides is at low temperature (typically -20 degC, or -80 degC for extended storage) inside a desiccated environment (e.g., with silica gel or molecular sieve desiccant) to minimize hydrolysis of the amide bonds and oxidation of the phenolic (tyrosine-derived) side chain. Keep the container sealed under an inert atmosphere (nitrogen or argon) when feasible, and allow the container to equilibrate to room temperature in a desiccator before opening to prevent atmospheric moisture from condensing on the cold solid. Reconstituted solutions should be aliquoted to minimize freeze-thaw cycles and stored frozen; avoid repeated warming to ambient temperature. Store away from strong oxidizers, strong acids, and strong bases, and separately from incompatible materials (see below). Storage areas should be cool, dry, well-ventilated, and secured against unauthorized access, consistent with the general storage guidance in OSHA 29 CFR 1910.1450 Appendix A and the recommendations for peptide stability described in the peer-reviewed literature. No specific manufacturer-independent shelf-life has been established in authoritative sources for this compound; follow the expiration or retest date supplied with the material.

Incompatibilities

Keep away from strong oxidizing agents (e.g., peroxides, perchlorates, concentrated nitric acid, hypochlorites), which can oxidize the aromatic (tyrosine- and phenylalanine-derived) side chains and the peptide backbone. Avoid contact with strong acids and strong bases, elevated temperatures, and prolonged exposure to moisture, all of which can promote hydrolysis of the amide (peptide) bonds in this cyclic octapeptide. Avoid strong reducing agents and electrophilic reagents that may modify the phenolic hydroxyl group of the tyrosine-derived residue. Protect from direct sunlight and ultraviolet light, which can induce photodegradation of aromatic (tyrosine- and phenylalanine-derived) residues. No specific incompatibilities beyond those characteristic of peptides containing aromatic, phenolic, and amide functional groups have been reported in authoritative regulatory sources for Phakellistatin 13; general good laboratory practice for peptide handling should be followed.

Section 8 — Exposure Controls / Personal Protection

Exposure Limits

No regulatory occupational exposure limits (OEL) have been established for Phakellistatin 13 (CAS 493012-52-5) by OSHA (29 CFR 1910.1000), ACGIH (TLV), NIOSH (REL), or equivalent international bodies (e.g., DFG MAK, UK HSE WEL). No biological exposure indices (BEIs) have been established. Phakellistatin 13 is a marine-derived cyclic octapeptide reported in the peer-reviewed literature as a bioactive/cytotoxic natural product; handle as a potentially bioactive substance of unknown toxicity and control exposure to the lowest level reasonably achievable (ALARA) using the engineering controls and PPE specified below.

Engineering Controls

Use only in a laboratory environment by trained personnel following the principles of OSHA's Laboratory Standard (29 CFR 1910.1450) and the recommendations of the NRC 'Prudent Practices in the Laboratory' (2011). Handle within a certified chemical fume hood, ventilated balance enclosure, or Class II biological safety cabinet with the sash at the recommended operating height; weigh and manipulate dry powder in a way that avoids generation of airborne dust (e.g., inside a containment enclosure or glove box). For scale-up, high-throughput, or aerosol-generating operations, use a HEPA-filtered containment isolator. Provide readily accessible emergency eyewash and safety shower stations meeting ANSI/ISEA Z358.1 within the work area. Maintain negative-pressure ventilation, restrict access to authorized personnel, and prohibit eating, drinking, smoking, or applying cosmetics in the work area. Decontaminate work surfaces after use and manage all waste as hazardous chemical waste in accordance with 40 CFR 260-273.

Personal Protective Equipment

Respiratory Protection: Under normal handling in a properly functioning fume hood or containment device, additional respiratory protection is generally not required. If airborne dust, mist, or aerosol may be generated outside of containment, or during weigh-out of dry powder, wear a NIOSH-approved (42 CFR Part 84) air-purifying respirator with N100/P100 particulate filters, or an equivalent powered air-purifying respirator (PAPR) with HEPA cartridges. Respirator use must comply with the OSHA Respiratory Protection Standard (29 CFR 1910.134), including medical clearance, fit-testing, and a written respiratory protection program. For potential large-scale releases or unknown airborne concentrations, use a supplied-air respirator or SCBA operated in pressure-demand mode.

Hand Protection: Wear chemically resistant, powder-free disposable gloves selected and used in accordance with EN ISO 374 / ASTM F739. Nitrile gloves of at least 0.11 mm (4-8 mil) thickness are recommended for incidental contact; double-glove for direct handling of solid or concentrated stock solutions in DMSO or other permeating solvents (DMSO can enhance dermal penetration and increase glove permeation - use butyl or laminated-film gloves when handling DMSO stocks). Inspect gloves before use, change immediately if punctured or contaminated, and wash hands thoroughly with soap and water after glove removal and before leaving the work area.

Eye / Face Protection: Wear tightly fitting chemical safety goggles meeting ANSI/ISEA Z87.1 (or EN 166 in the EU) when handling the solid or solutions. A face shield worn over goggles is recommended when there is a risk of splash, spraying, or when handling larger quantities. Do not wear contact lenses when working with this material. Emergency eyewash stations meeting ANSI/ISEA Z358.1 must be immediately accessible.

Skin Protection: Wear a laboratory coat with long sleeves fully buttoned/snapped, closed-toe chemically resistant footwear, and full-length trousers. For handling of bulk powder, weighing, or operations that could generate splash or aerosol, wear an impervious/chemical-resistant apron or a disposable, chemical-resistant coverall (e.g., Tyvek or equivalent) over the lab coat. Remove and launder or dispose of contaminated clothing before reuse; do not take contaminated PPE outside the designated work area. Skin exposure should be prevented as a matter of prudent practice for bioactive substances of unknown toxicity.

Section 9 — Physical and Chemical Properties

Physical State	Solid (research-grade lyophilised powder or crystalline solid)
Appearance	White to off-white amorphous solid
Odor	Odorless
Odor Threshold	Not available.
Boiling Point	Not determined
Melting Point	Not determined
Flash Point	Not determined
Auto-ignition Temperature	No data available.
Decomposition Temperature	No experimental data available.
Vapor Pressure	Not determined
Vapor Density	Not determined
Specific Gravity	Not determined
Partition Coefficient (log K _{ow})	No experimental data available.
Solubility	Soluble in DMSO; slightly soluble in methanol
Stability in Solution	Subject to hydrolytic and oxidative degradation typical of the chemical class; store reconstituted solutions refrigerated or frozen, protect from light, and use within the stability window indicated on the Certificate of Analysis.
pH	Not determined

Molecular Weight	798.9 g/mol
Molecular Formula	C42H54N8O8

Section 10 — Stability and Reactivity

Chemical Stability: Stable under normal conditions of use, storage, and transport.

Conditions to Avoid: Excessive heat, open flames, sparks, incompatible materials.

Incompatible Materials: Keep away from strong oxidizing agents (e.g., peroxides, perchlorates, concentrated nitric acid, hypochlorites), which can oxidize the aromatic (tyrosine- and phenylalanine-derived) side chains and the peptide backbone. Avoid contact with strong acids and strong bases, elevated temperatures, and prolonged exposure to moisture, all of which can promote hydrolysis of the amide (peptide) bonds in this cyclic octapeptide. Avoid strong reducing agents and electrophilic reagents that may modify the phenolic hydroxyl group of the tyrosine--derived residue. Protect from direct sunlight and ultraviolet light, which can induce photodegradation of aromatic (tyrosine- and phenylalanine-derived) residues. No specific incompatibilities beyond those characteristic of peptides containing aromatic, phenolic, and amide functional groups have been reported in authoritative regulatory sources for Phakellistatin 13; general good laboratory practice for peptide handling should be followed.

Hazardous Decomposition Products: Upon combustion or decomposition may produce: carbon monoxide (CO), carbon dioxide (CO₂), nitrogen oxides (NO_x).

Hazardous Polymerization: Will not occur.

Section 11 — Toxicological Information

The toxicological properties of this substance have not been fully characterized. Where no authoritative study data was identified, endpoint classifications are based on a weight-of-evidence approach using read-across from the compound's chemical class and structural features, per GHS Rev.8 Chapter 1.3.2.4. "Not classified" entries below mean "not classified based on currently available data" — hazards cannot be excluded.

Acute Toxicity: Acute toxicity data (oral, dermal, inhalation) specific to Phakellistatin 13 (CAS 493012-52-5) have not been located in authoritative regulatory databases (ECHA, NIOSH, NTP, EPA) or in the peer-reviewed toxicology literature. No LD₅₀ or LC₅₀ values from authoritative sources are available. Not classified for acute toxicity based on currently available data; hazards cannot be excluded (GHS Rev.8, S1.3.2.4). The toxicological properties of this substance are not fully characterized; handle as a substance of unknown acute toxicity and minimize all routes of exposure (inhalation of dust/aerosol, skin/eye contact, ingestion).

Skin Corrosion / Irritation: No experimental skin irritation or corrosion data specific to Phakellistatin 13 have been identified in authoritative sources (ECHA, NTP, EPA, or peer-reviewed literature). Not classified for skin corrosion/-irritation based on currently available data; hazards cannot be excluded (GHS Rev.8, S1.3.2.4). In the absence of characterization, dermal contact should be prevented using appropriate personal protective equipment as described in Section 8.

Serious Eye Damage / Irritation: No experimental serious eye damage or eye irritation data specific to Phakellistatin 13 have been located in authoritative regulatory databases or the peer-reviewed literature. Not classified for serious eye damage/eye irritation based on currently available data; hazards cannot be excluded (GHS Rev.8, S1.3.2.4). Eye contact with the solid or with solutions/aerosols should be avoided.

Skin / Respiratory Sensitization: No respiratory or skin sensitization studies (e.g., LLNA, guinea pig maximization, human repeat insult patch test) specific to Phakellistatin 13 have been identified in authoritative sources. Not classified for respiratory or skin sensitization based on currently available data; sensitization potential cannot be excluded (GHS Rev.8, S1.3.2.4). The toxicological properties of this substance are not fully characterized.

Germ Cell Mutagenicity / Genotoxicity: Not classified based on currently available data; hazards cannot be excluded. Weight-of-evidence assessment applied using read-across from chemical class and structural considerations (GHS Rev.8 Chapter 1.3.2.4); no authoritative substance-specific study data identified.

Carcinogenicity: Phakellistatin 13 is not listed as a carcinogen by the International Agency for Research on Cancer (IARC), the U.S. National Toxicology Program (NTP) Report on Carcinogens, OSHA (29 CFR 1910 Subpart Z), the U.S. EPA Integrated Risk Information System (IRIS), or the ACGIH TLV carcinogen categories. No long-term carcinogenicity bioassays have been reported. Not classified for carcinogenicity based on currently available data; carcinogenic potential cannot be excluded (GHS Rev.8, S1.3.2.4).

Reproductive Toxicity: No reproductive, developmental, or fertility toxicity studies specific to Phakellistatin 13 (CAS 493012-52-5) have been identified in authoritative regulatory sources (ECHA, NTP, EPA) or in the peer-reviewed toxicology literature. Not classified for reproductive toxicity or effects on/via lactation based on currently available data; hazards cannot be excluded (GHS Rev.8, S1.3.2.4). The toxicological properties of this substance are not fully characterized.

Specific Target Organ Toxicity (STOT): Specific target organ toxicity - single exposure (STOT-SE) and repeated exposure (STOT-RE): No single-dose or repeated-dose systemic toxicity studies specific to Phakellistatin 13 conducted according to internationally recognized test guidelines (e.g., OECD 407, 408, 420, 423) have been identified in authoritative sources. Not classified for STOT-SE or STOT-RE based on currently available data; target-organ effects cannot be excluded (GHS Rev.8, S1.3.2.4). The toxicological profile of this substance is not fully characterized; exposure by all routes should be minimized.

Aspiration Hazard: Not classified based on currently available data; hazards cannot be excluded. Weight-of-evidence assessment applied using read-across from chemical class and structural considerations (GHS Rev.8 Chapter 1.3.2.4); no authoritative substance-specific study data identified.

Derived No-Effect Level (DNEL): No data available — no substance-specific DNEL has been derived.

Predicted No-Effect Concentration (PNEC): No data available — no substance-specific PNEC has been derived.

Section 12 — Ecological Information

No authoritative substance-specific ecotoxicity study data was identified. In the absence of experimental data, adverse environmental effects cannot be fully excluded.

Ecotoxicity: No substance-specific experimental aquatic toxicity data (e.g., fish LC50, Daphnia EC50, algal ErC50) have been identified for Phakellistatin 13 (CAS 493012-52-5) in authoritative sources including ECHA, U.S. EPA ECOTOX, or PubChem. The substance is not classified as hazardous to the aquatic environment under GHS/CLP based on a weight-of-evidence assessment in the absence of authoritative experimental data. As a research-scale bioactive cyclic octapeptide isolated from marine sponges (*Phakellia fusca*; *Stylissa caribica*) with reported cytotoxic activity toward tumor cell lines, release to the environment should nevertheless be minimized as a precaution.

Persistence and Degradability: No substance-specific experimental biodegradation, hydrolysis, or photolysis data (e.g., OECD 301/310 ready biodegradability testing) have been identified for this compound in ECHA, U.S. EPA, or peer-reviewed sources. Environmental persistence has not been experimentally characterized; no read-across estimate is provided.

Bioaccumulative Potential: No substance-specific experimental bioconcentration factor (BCF) or measured log K_{ow} (octanol-water partition coefficient) values have been identified in authoritative sources for Phakellistatin 13. Given the high molecular weight (798.9 g/mol) and multiple amide/hydroxyl functional groups, significant bioaccumulation is not anticipated, but this has not been experimentally confirmed.

Mobility in Soil: No substance-specific experimental data identified.

Other Adverse Effects: No other adverse environmental effects identified. The substance is not included on the Montreal Protocol list of ozone-depleting substances.

Section 13 — Disposal Considerations

Dispose of contents and container in accordance with all local, state, and federal regulations. Do not dispose of this material into sewers or waterways. Contact a licensed waste disposal company for disposal guidance.

US: Dispose in accordance with 40 CFR Parts 261-270 (RCRA). **EU:** Dispose according to Directive 2008/98/EC (Waste Framework Directive).

Section 14 — Transport Information

DOT (US)	Not regulated as dangerous goods under DOT (49 CFR) based on current classification.
IATA	Not regulated as dangerous goods under IATA Dangerous Goods Regulations based on current classification.
IMDG	Not regulated as dangerous goods or as a marine pollutant under the IMDG Code based on current classification.
UN Number	Not applicable.

Transport classifications above are based on the substance's intrinsic hazard classification; the shipper must independently verify the classification, packaging, labelling, and documentation requirements for their specific shipment configuration, quantity, and carrier (including airline policies) prior to dispatch.

Section 15 — Regulatory Information

United States

TSCA (Toxic Substances Control Act): May be eligible for exemption from TSCA inventory listing requirements under the R&D provisions of 40 CFR 720.36, depending on actual conditions of use. This substance is supplied solely for use in scientific research and development in small quantities; it is not intended for, and shall not be used for, any commercial manufacturing, processing, or distribution in commerce. The importer/end user is responsible for confirming that the R&D exemption criteria are met for their specific use. **OSHA HazCom 2012:** This SDS was prepared in accordance with 29 CFR 1910.1200 (HazCom 2012), aligned with the Globally Harmonized System (GHS) Rev. 8. **CERCLA / SARA Title III:** Not listed as a CERCLA Hazardous Substance (40 CFR 302.4); not subject to SARA 313 reporting based on available classification data. Users must independently verify applicability for their facility.

European Union

REACH (EC 1907/2006): Supplied solely for Scientific Research and Development (SR&D) use in quantities below 1 tonne per year per legal entity. Where applicable, this use may be exempt from REACH registration obligations under the scientific research and development provisions of REACH Article 3(23) and the conditions of Article 26(3); importers/users should independently verify the applicable exemption pathway for their specific use. If the substance is used as part of a formally notified Product and Process Oriented Research and Development (PPORD) programme, the separate notification procedure under REACH Article 9 (with a 5-year exemption renewable once) may apply instead. **CLP (EC 1272/2008):** Not classified under CLP based on available data; no harmonized classification entry identified in Annex VI of CLP or the ECHA Classification and Labelling (C&L) Inventory.

Canada

WHMIS 2015 / HPR: Not classified as a hazardous product under the Hazardous Products Act and Hazardous Products Regulations (SOR/2015-17) based on available data and weight-of-evidence assessment. Supplied for laboratory

research use only. **DSL/NDSL:** Research-use exemption applies; substance is not intended for commercial import or manufacture in Canada.

Note: The regulatory statements above reflect the intended use of this substance for scientific research and development only and do not constitute a legal determination of regulatory status. If the substance is used outside the R&D exemption scope, users are solely responsible for independently verifying applicable regulatory obligations (TSCA, REACH, WHMIS, state, and local) for their specific use and jurisdiction prior to any such use.

Section 16 — Other Information

Document ID	65181b00-0b82-4fd4-a6d4-08302d3097d3
Revision Date	2026-09-11
Version	1.0
Prepared By	Prepared in accordance with GHS Rev.8 and OSHA HazCom 2012 (29 CFR 1910.1200). Independent review by a qualified chemical safety professional is recommended prior to use.

Revision History

Revision date: 2026-09-11
Version: 1.0
Change description: Initial issue. Document prepared in 16-section GHS Rev.8 / OSHA HazCom 2012 format.

Sources Used

- PubChem (U.S. National Library of Medicine / NCBI) — <https://pubchem.ncbi.nlm.nih.gov>
- Peer-reviewed chemistry and toxicology literature (class-based read-across and weight-of-evidence assessment per GHS Rev.8 Chapter 1.3.2.4)
- OSHA HazCom 2012 / 29 CFR 1910.1200 Appendix A–C; GHS Rev.8; OECD Test Guidelines

Key to Abbreviations

CAS = Chemical Abstracts Service; GHS = Globally Harmonized System of Classification and Labelling of Chemicals; OSHA = U.S. Occupational Safety and Health Administration; HazCom = Hazard Communication Standard; REACH = Registration, Evaluation, Authorisation and Restriction of Chemicals; CLP = Classification, Labelling and Packaging Regulation; TSCA = Toxic Substances Control Act; WHMIS = Workplace Hazardous Materials Information System; OEL = Occupational Exposure Limit; PEL = Permissible Exposure Limit; TLV = Threshold Limit Value; REL = Recommended Exposure Limit; STOT = Specific Target Organ Toxicity; LD50 = Median Lethal Dose; LC50 = Median Lethal Concentration; PPE = Personal Protective Equipment; SCBA = Self-Contained Breathing Apparatus; R&D = Research and Development.

Disclaimer

DISCLAIMER: The information in this Safety Data Sheet is compiled from the authoritative sources cited above, supplemented by weight-of-evidence assessment based on the compound's chemical class and published literature. It is believed to be accurate as of the revision date but is provided "as is" without warranty of any kind, express or implied, including fitness for a particular purpose. The preparer of this document has not independently tested the substance described herein. Users bear sole responsibility for verifying all information, ensuring safe handling, and compliance with all applicable federal, state, provincial, and local regulations. This SDS is not a substitute for independent chemical safety assessment by a qualified professional. This product is intended for scientific research and development use only and is not for human consumption, drug, food, cosmetic, agricultural, or household use.

This SDS complies with GHS Revision 8 / UN GHS Rev.8 and OSHA HazCom 2012 (29 CFR 1910.1200).